

R E M A R K S

Claims 1, 4-7, 9-16, 18-21, 23-27, 29-45 are pending in the application.

Claims 1, 16 and 27 have been amended and claims 40-45 have been presented. Reconsideration of the application as amended is respectfully requested.

Claim 1 stands objected because in line 9, "IP" should be corrected to --InP--. Applicants have amended claim 1 to correct the informality. Withdrawal of this objection is respectfully requested.

35 U.S.C. 112

Claims 27 and 29-39 stand rejected under 35 U.S.C 112 because the specification, while being enabling for an optical recording medium having a transparent layer comprising In-Sn oxide, tin oxide, indium oxide, zinc oxide, titanium oxide, Sb-Sn oxide, or combinations thereof, does not allegedly reasonably provide enablement for an optical recording medium having a transparent layer comprising "at least an oxide". This rejection is respectfully traversed.

Claim 27 has been amended to more clearly identify one of the claimed features of the invention. Specifically, original claim 28 is merged into the amended claim 27 to add the limitation regarding

the species of the oxide. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

35 U.S.C. 102(b)

Claims 1, 4-7, 9-16, 18-21 and 23-26 stand rejected under 35 U.S.C. 102(b) as being unpatentable by JP 6-171236 (JP '236). Applicants respectfully traverse this rejection.

Amended claims 1, 16 and 27 recite a negative optical contrast, resulting from a high reflectivity before recording and a low reflectivity after recording, generated by the inventive optical recording medium by which information is recorded and retrieved via an optical beam.

Comparing the claimed features with JP 6-171236, as JP 6-171236 does not disclose a semi-transparent reflective area of alloy/compound formed by the transparent layer and the reflecting layer, also the optical contrast after recording via the reaction between Al/Au and Ge layers is only elevated, not lowered, indicates the recording mechanisms of JP 6-171236 and the present invention are basically distinct from each other.

Compared with the information-recording mechanism of JP 6-171236 in which only higher reflectivity is resulted by thermal diffusion, the information-recording mechanism in the present invention (a) reduces the effective thickness of the transparent

layer, altering the respective optical path lengths, resulting in a shift of constructive or destructive interference patterns; and/or (b) transforms the optical constants (n and k) and thus the reflective intensity; and/or (c) altering the polarization angle, which not only changes the conditions for the repetitive multiple reflections.

Therefore the claimed features capable of both lowering and elevating optical contrast and achieving better performance in the invention should not be considered as anticipated by or obvious over JP 6-171236.

To more specifically clarify the importance of the feature- "predetermined thickness" of the transparent layer, claims 1, 16 and 27 are amended to have a transparent layer with a predetermined thickness such that the reflectivity after recording is decreased, for that the reflecting layer will react therewith to form the semi-transparent reflective area (optical or thermal reactant of transparent layer and reflecting layer) which activates an optical recording mechanism that decreases reflectivity after recording, and thereby the novelty of the present invention should be clear.

Claims 1, 4-7, 9-16, 18-21 and 23-26 stand rejected under 35 U.S.C. 102(b) as being unpatentable by European document 0 822 543. This rejection is respectfully traversed.

EP '543 is indeed one of the references recited in the prior art. See the specification, page 2, JP Application No. 08-274809 (JP Publication No. 10-076755). As described in the prior art, EP '543 disclosed a recording layer consisting of a semiconductor layer and a reflecting metallic layer that can produce semiconductor/metal contacts inducing crystalline effect during light exposure. The amorphous semiconductor layer (the reacting layer, such as Si) will crystallize starting from the semiconductor/metal (such as Si/Al) interface which results in the modulation of the reflectivity of the recording layer. However, the signal modulation resulting from the amorphous/crystalline transformation is small and limited thereby limits the design's applicability to the diverse specifications of optical recording media.

Claims 1, 4-7, 9-16, 18-21 and 23-39 stand rejected under 35 U.S.C. 102(b) as being unpatentable by W000/04536. This rejection is respectfully traversed.

WO '536 neither teaches nor suggests "a transparent layer having a predetermined thickness such that the reflectivity after recording is decreased", nor "a semi-transparent reflective area of alloy/compound which is formed near the interface between the transparent layer and the reflective layer during recording".

Indeed, WO '536 only teaches "a second layer comprising at least an oxide or a substance including oxygen as a constituent element". Furthermore, although the transparent layer in the present invention can be made of an oxide, the recording mechanism is obviously different from WO '536.

In WO '536, the optical recording mechanism is activated by the oxidation of the first metal layer, resulted in an oxidized first metal layer and a "less-oxidized" second oxide layer. See WO '536 at column 4, lines 43-62. The oxygen bonding energy of the first metal and the oxygen dissociating energy of the second oxide are, thus, critical features.

However, in the present invention, owing to different recording mechanism from WO '536, optical contrasts are not limited at reflectivity changes resulted from oxidation, materials including non-oxides are applicable for the transparent layer and reflecting layer.

To further clarify the difference between the present invention and WO '536, a new independent claim 40 applying non oxide in transparent layer is added. Claim 40 is novel and non-obvious over WO '536, since it teaches away from WO '536 by excluding oxides in the transparent layer.

For the reason as described above, Applicant believes that claim 1, 16, 27 and 40 are allowable. Insofar as claim 1, 16, 27

and 40 are allowable, claims 4-7, 9-15, claims 18-21, 23-26, claims 28-39 and claims 41-45 which depend from claim 1, claim 16, claim 27 and claim 40 respectively, are also allowable on their own merits in claiming additional elements not included in claim 1, claim 16, claim 27 and claim 40. Accordingly, favorable reconsideration and withdrawal of the 35 USC 102(b) rejections are respectfully requested.

Because the additional documents cited by the Examiner have been cited merely to show the state of the prior art and have not been utilized to reject the claims, no further comments concerning these documents are considered necessary at this time.

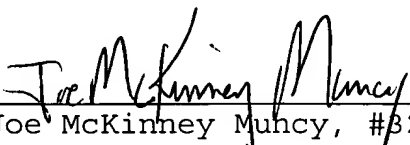
Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Joe McKinney Muncy (Reg. No. 32,334) at the telephone number of the undersigned below.

Appl. No. 09/785,310

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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